

IAP20 Rec'd PCT/PTO 28 DEC 2005
CLAIMS FOR EXAMINATION

**ENGLISH TRANSLATION OF
INTERNATIONAL APPLICATION
CLAIMS AND ARTICLE 19
AMENDED CLAIMS
INCORPORATED**

PCT/JP2004/009503

IAP20 Rec'd PCT/PTO 28 DEC 2005

AMENDMENT BASED ON ARTICLE 19

CLAIMS

1. (Amended) A pattern comparison inspection method which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, and which detects a defect in said inspection target pattern by comparing image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, said method comprising:

a reference position selecting step for selecting from among positions on said inspection target pattern a reference position which is judged whether it should be contained in said inspection region;

an image comparing step for comparing an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position and a prescribed distance inward of the boundary of a region that is known to be said repeated pattern region; and

an inspection region setting step for setting said inspection region by containing therein said reference position when a comparison result from said image comparing step shows a value not greater than a prescribed threshold value.

2. A pattern comparison inspection method which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, and which detects a defect in said inspection target pattern by comparing image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, said method comprising:

a reference position selecting step for selecting a reference position which is judged whether it should be contained in said inspection region, by incrementally shifting said reference position by a

prescribed distance within said inspection target pattern;

5 an image comparing step for comparing an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

10 an inspection region setting step for setting said reference position as the boundary of said inspection region when a comparison result from said image comparing step performed by incrementally shifting said reference position by said prescribed distance shows a change greater than a prescribed threshold value.

15 3. A pattern comparison inspection method which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, and which detects a defect in said inspection target pattern by comparing image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, said method comprising:

20 a reference position selecting step for selecting a reference position which is judged whether it should be contained in said inspection region, by
25 incrementally shifting said reference position by a prescribed distance within said inspection target pattern;

30 an image comparing step for comparing an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

35 an inspection region setting step for setting said reference position as the boundary of said inspection region when a comparison result from said image comparing step performed by incrementally shifting

said reference position by said prescribed distance shows a maximum change.

5 4. A pattern comparison inspection method as claimed in any one of claims 1 to 3, wherein said image comparing step compares said image signal at said reference position with an image signal at a position located farther inside said repeated pattern region than said reference position is.

10 5. A pattern comparison inspection method as claimed in any one of claims 1 to 3, wherein a position located a prescribed distance inward of the boundary of said repeated pattern region is selected as said reference position, and

15 said inspection region is set by repeatedly performing said image comparing step while incrementally moving said reference position outwardly toward the boundary of said repeated pattern region.

20 6. (Amended) A pattern comparison inspection method as claimed in claim 2 or 3, further comprising a tentative region setting step for setting a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

25 said image comparing step compares said image signal at said reference position with an image signal at a position located inside said tentative region.

30 7. (Amended) A pattern comparison inspection method as claimed in any one of claims 1 to 3, further comprising a tentative region setting step for setting a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

 a position located inside said tentative region is selected as said reference position, and

35 said inspection region is set by repeatedly performing said image comparing step while incrementally shifting said reference position outwardly toward the boundary of said repeated pattern region.

8. A pattern comparison inspection method as claimed in any one of claims 1 to 3, wherein a position located a prescribed distance outward of the boundary of said repeated pattern region is selected as said
5 reference position, and

said inspection region is set by repeatedly performing said image comparing step while incrementally shifting said reference position inwardly toward the boundary of said repeated pattern region.

10 9. (Amended) A pattern comparison inspection apparatus which comprises an imaging portion which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, a
15 storing portion which stores said captured image of said inspection target pattern, a pattern comparing portion which compares, on said stored image, image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection
20 region defined inside said repeated pattern region, and a defect detecting portion which detects a defect in said inspection target pattern based on a result of said comparison, said apparatus comprising:

25 a reference position selecting portion which selects from among positions on said inspection target pattern a reference position which is judged whether it should be contained in said inspection region;

an image comparing portion which compares an image signal at said reference position with an image
30 signal at a position located a second integral multiple of said repeat pitch away from said reference position and a prescribed distance inward of the boundary of a region that is known to be said repeated pattern region; and

35 an inspection region setting portion which sets said inspection region by containing therein said reference position when a comparison result from said

image comparing portion shows a value not greater than a prescribed threshold value.

5 10. (Amended) A pattern comparison inspection
apparatus which comprises an imaging portion which
captures an image of an inspection target pattern having
a repeated pattern region with repeated patterns formed
in a repeated fashion at a prescribed repeat pitch, a
storing portion which stores said captured image of said
inspection target pattern, a pattern comparing portion
10 which compares, on said stored image, image signals taken
from positions located a first integral multiple of said
repeat pitch away from each other within an inspection
region defined inside said repeated pattern region, and a
defect detecting portion which detects a defect in said
15 inspection target pattern based on a result of said
comparison, said apparatus comprising:

 a reference position selecting portion
which selects a reference position which is judged
whether it should be contained in said inspection region,
20 by incrementally shifting said reference position by a
prescribed distance within said inspection target
pattern;

 an image comparing portion which compares
an image signal at said reference position with an image
25 signal at a position located a second integral multiple
of said repeat pitch away from said reference position;
and

 an inspection region setting portion which
sets said reference position as the boundary of said
30 inspection region when a comparison result, obtained from
said image comparing portion as a result of incrementally
shifting said reference position by said prescribed
distance, shows a change greater than a prescribed
threshold value.

35 11. (Amended) A pattern comparison inspection
apparatus which comprises an imaging portion which
captures an image of an inspection target pattern having

a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, a storing portion which stores said captured image of said inspection target pattern, a pattern comparing portion which compares, on said stored image, image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, and a defect detecting portion which detects a defect in said inspection target pattern based on a result of said comparison, said apparatus comprising:

a reference position selecting portion which selects a reference position which is judged whether it should be contained in said inspection region, by incrementally shifting said reference position by a prescribed distance within said inspection target pattern;

an image comparing portion which compares an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

an inspection region setting portion which sets said reference position as the boundary of said inspection region when a comparison result, obtained from said image comparing portion as a result of incrementally shifting said reference position by said prescribed distance, shows a maximum change.

12. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, wherein said image comparing portion compares said image signal at said reference position with an image signal at a position located farther inside said repeated pattern region than said reference position is.

13. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, wherein a position located a prescribed distance inward

of the boundary of said repeated pattern region is selected as said reference position, and

5 said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally moving said reference position outwardly toward the boundary of said repeated pattern region.

10 14. (Amended) A pattern comparison inspection apparatus as claimed in claim 10 or 11, further comprising a tentative region setting portion which sets a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

15 said image comparing portion compares said image signal at said reference position with an image signal at a position located inside said tentative region.

20 15. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, further comprising a tentative region setting portion which sets a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

25 a position located inside said tentative region is selected as said reference position, and

 said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally shifting said reference position outwardly toward the boundary of said repeated pattern region.

30 16. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, wherein a position located a prescribed distance outward of the boundary of said repeated pattern region is selected as said reference position, and

35 said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally shifting said

reference position inwardly toward the boundary of said repeated pattern region.

- | | | |
|----|-----|-------------|
| | 17. | (Cancelled) |
| | 18. | (Cancelled) |
| 5 | 19. | (Cancelled) |
| | 20. | (Cancelled) |
| | 21. | (Cancelled) |
| | 22. | (Cancelled) |
| | 23. | (Cancelled) |
| 10 | 24. | (Cancelled) |